EFFECT OF ANULOMA-VILOMA AND BHRAMARI PRANAYAMA ON PRIMARY DYSMENORRHEA AMONG SCHOOL GIRLS OF GWALIOR

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(PH2022-173)

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A Synopsis Submitted to

DEPARTMENT OF YOGIC SCIENCES

LAKSHMIBAI NATIONAL INSTITUTE OF PHYSICAL EDUCATION, GWALIOR (M.P.) INDIA

For the Award of Degree of

Doctor of Philosophy in Yogic Sciences

2022-23

ABSTRACT

Primary dysmenorrhea PD negatively affects teenage girls since it causes pain throughout their menstruation cycles without medical causes. Many cultures continue treating menstruation as an unacceptably forbidding subject even though medical innovations have occurred so girls needlessly endure their problems without necessary care. Through this research we will examine pranayama as a natural method which school girls can easily access to manage Primary Dysmenorrhea without using pharmaceutical drugs. This study will investigate how specific pranayama techniques like Anuloma-Viloma and Bhramari Pranayama will influence the degree of pain and associated symptoms in school girls suffering from PD in Gwalior, M.P., India. This research will investigate 48 female adolescents aged 13 to 18 years who experienced primary dysmenorrhea by selecting girls from government and private schools in Gwalior. The research is divided into two main participant groups including the experimental and control groups. Prior to and following the pranayama session, pain severity and additional symptoms were measured. Instructions will be provided to those who practiced pranayama techniques through a specified period of time. The research assumptions were established that pranayama would reduce experimental group pain levels and related symptoms to a greater extent than observed in the non-pranayama group. The presented research shows the value of implementing the low-cost breathing intervention of pranayama for treating adolescent girls with PD in educational institutions where pharmaceutical solutions prove impractical or unpreferred. The results may enhance menstrual health awareness and health programs in support of pranayama routines to enable adolescent girls with strong management skills for their menstrual cycle.

Keywords: Primary Dysmenorrhea, Adolescent Girls, Pranayama, Menstrual Pain, Non-Pharmacological Intervention, Yoga.

CONTENTS

1. Introduction

1.1 Brief Introduction of the Topic

1.2 Statement of the Problem

1.3 Objective of the Study

1.4 Delimitations

1.5 Limitations

1.6 Hypotheses

1.7 Significance of the Study

2. Literature Review

3. Research Methodology

3.1 Selection of Subjects

3.2 Selection of Variables

3.3 Research Design

3.4 Administration of Tests and Collection of Data

3.5 Assessment Tool

3.6 Statistical Techniques

3.7 Expected Outcome

References

CHAPTER 1

INTRODUCTION

1.1 BRIEF INTRODUCTION OF THE TOPIC:

It is evident from the history that women were always criticized for whom they are and termed as the 'Weaker Section' of the society just because of the composition and work of their reproductive system. Early societies were not always kind to the menstruating women probably because of a general lack of knowledge about this complicated subject. After the liberation arises, the law of equal rights was given to women as men but what about the symptoms they face during the cycle. To give them equal rights they need to be strong enough to face the pain without any side effects.

A menstrual disorder is any abnormal change in a woman's menstrual cycle whereas dysmenorrhea is a term that indicates a painful menstrual cycle associated with symptoms like vomiting, nausea, abdominal pain, abdominal bloating, dizziness and cramps which varies from person to person. A gynaecological disorder, dysmenorrhea affects around 45–95% of women who menstruate worldwide. This mainly affects the daily life of a women during her 'days' and restrict her to follow her daily routine activities and many school going girls miss their school just for this. Dysmenorrhea adversely affects both their health and well-being by giving them the feeling that they are 'Good for nothing'. Along with its symptoms it also brings the sudden mood swings which make them feel depressed and overtired during their periods. They prefer to rest at home rather than following their busy schedule life resulting in class and work absenteeism.

Primary and secondary dysmenorrhea are the two basic forms of dysmenorrhea.

Primary Dysmenorrhea is the term used to describe frequent, regular period cramps that are not brought on by any other conditions. Pain normally begins 1-2 days before the start of menstruation and is typically felt in the lower abdomen, back, or thighs. Between 12 and 72 hours, pain may shift between mild and severe, and it can be accompanied by other symptoms. Although it still varies from person to person, primary dysmenorrhea commonly appears during adolescence, three years after the menarche or at the time as well.

Prostaglandins are hormones that drive the uterus to contract during menstruation and childbirth, and it is believed that having too much of them is what causes primary

dysmenorrhea. According to research, women who have dysmenorrhea have higher quantities of prostaglandins in their menstrual fluid than those who do not.

Conversely, a condition affecting the reproductive organs is the cause of secondary dysmenorrhea. The discomfort often persists and tends to worsen over time. This can result in fibroids, adenomyosis, endometriosis, and other disorders.

The Sanskrit root 'yuj', which meaning to unite or collaborate, is where the name yoga comes from. Yoga combines asanas, pranayamas, and meditation techniques. It is the ideal fusion of breathing exercises and muscular motions. Now-a-days Yoga is regarded as a top alternative therapy that promotes a healthy way of life. By controlling the nervous system and releasing beta-endorphins, the body's natural painkillers that lessen the effects of prostaglandins (PGE2) and naturally relieve pain, yoga improves health and develops the body's muscles and glands. Consequently, multiple studies have highlighted on the beneficial effects of yoga on primary dysmenorrhea.

With this, pranayama is suggested as a way to ease symptoms in PD. It was reviewed through the available literature that yoga helps to decrease the pain during periods, as the nervous system is calmed by pranayama practices, the pituitary is stimulated, and healthy hormone secretion results. So, this research intends to evaluate the decrease in pain through the above yoga intervention.

1.2 STATEMENT OF THE PROBLEM:

Effect of Anuloma-Viloma and Bhramari Pranayama on Primary Dysmenorrhea among School Girls of Gwalior.

1.3 OBJECTIVES OF THE STUDY:

1. To see the effect of pranayama on psycho-physiological variable, i.e. the evaluation of pain during dysmenorrhea with pre and post-test.

2. To see how pranayama can affect the associated symptoms with primary dysmenorrhea.

1.4 DELIMITATIONS:

1. Subjects will be chosen whose ages fall between 13 and under 18 years old.

2. Study participants will include patients diagnosed with primary dysmenorrhea.

3. Only students from schools in the Gwalior region will be selected.

4. Forty-eight students diagnosed with primary dysmenorrhea will be participating.

1.5 LIMITATIONS:

As the researcher will be using a human sample, she will be considering the following to be the study's limitation:

1. Difficult medical tests cannot be used since they are expensive and there is a problem with participant and parental disagreement.

2. It is preferable to get parental consent, which is a challenging element in India for the problem at hand.

3. The researcher employed a questionnaire to estimate the patients' pain and associated symptoms, which is seen as a subjective evaluation and could be seen as a limitation of the subject.

4. The researcher gave individuals a questionnaire in order to collect some personal information for the topic. This study's limitations might be viewed as applicable to any subject who gave an incorrect response.

1.6 HYPOTHESES:

For this study the scholar took the opinion of experts and moreover the scholar also went through various literatures and then only the scholar initiated this study with the following hypotheses:

H_0: There is no significant difference in the pain of primary dysmenorrhea among school girls who practice pranayama in study group than those who did not practice pranayama in control group.

H_1: There is a significant difference in the pain of primary dysmenorrhea among school girls who practice pranayama in study group than those who did not practice pranayama in control group.

H_0: There is no significant difference in the associated symptoms of primary dysmenorrhea among school girls who practice pranayama in study group than those who did not practice pranayama in control group.

H_2: There is a significant difference in the associated symptoms of primary dysmenorrhea among school girls who practice pranayama in study group than those who did not practice pranayama in control group.

1.7 SIGNIFICANCE OF THE STUDY:

This present research emphasises managing primary dysmenorrhea in a natural way only with the help of simple pranayama techniques. In our country, menstruation remains an issue veiled in secrecy and a very less or no attention is given to treat this problem and women are naturally expected to endure it silently.

Since majority of studies conducted on primary dysmenorrhea focuses on physical exercises (Asanas) which may not be suitable for all the women, this work aims to explore pranayama techniques as a natural approach to its management.

CHAPTER 2

REVIEW OF LITERATURE

1. (Vasantha, 2020) conducted a study named "Effectiveness of yoga on primary dysmenorrhea among the adolescent girls at selected schools" where samples of 300 adolescent females (150 study, 150 control) were chosen at particular schools in the Kallakurichi Taluk Villupuram District using a random selection approach. Pretesting was done on both the experimental and control groups using a standardised questionnaire. For three months, an experimental yoga group practiced. Before beginning the yoga training programme in the study group, 79.3% of girls reported having moderate pain, while 13.3% reported having severe pain. After the training programme, all 150 of the girls, or 100% of them, had minor dysmenorrhea-related associated factors. The findings indicated that yoga enhances both physical and mental health, lessens symptoms, enables people to engage in regular activities without being interrupted, reduces school absences, enhances classroom attentiveness, and keeps people from taking self-medication.

2. (C, 2010) conducted a study in Salem on acquired stress of PD and yoga's effect on adolescent girls. The researcher completed the research in two stages in which Phase II used a quasi-experimental design without an identical pre-test or post-test control group. A study group was taught yoga here. 145 females were included in the sample (86 for the research group and 59 for the control group). Pre-test results for the study group and control group were 2.197, 0.732, 1.949, and 0.797, respectively, when taking the mean and standard deviation into account. Post-test results for the study group and control group were 0.453, 0.566, 1.830, and 0.967, respectively. The study's findings showed that yoga and educational interventions had a beneficial overall impact on adolescent girls' development. The outcomes also showed that yoga was successful in lessening the severity of PD and the level of perceived stress.

3. (McGovern & Cheung, 2018) conducted a study on yoga and life quality of women with PD which is a systematic review. The study applied PRISMA when creating this review article. Through January 2017, plenty of databases were searched. Quasi-experimental works are mainly considered. The search turned up 378 publications, 14 of which matched the requirements for a final evaluation with many quasi-experimental and RCT's with 1409 participants and ages ranging from 13 to 45. The results demonstrated that integrating a yoga

programme in the women with PD's schedule led to positive changes in their pain, sleep issues, and work capacity. Thus we can say that yoga is a viable and secure practice for PD management.

4. (Nag, 2013) conducted a study named "Effect of yoga on primary dysmenorrhea and stress in medical students". The study assesses yoga's effectiveness as a complementary treatment for PD and stress. A total of 113 medical students with PD from Dr. Pinnamaneni Siddharth Medical College were separated in 2 groups: 53 and 68 in control and study group. All participants received semi-structured questionnaires at baseline, as well as the Numerical Pain Scale (NRC). For 12 weeks, yoga, pranayama, and meditation were given to training group. Later, pain significantly decreased following the yoga intervention. 11.66% of the study group experienced just little discomfort, while 83.33% claimed complete pain alleviation. There was no pain reduction in the control group. After the yoga intervention, the study group's daily activity increased and absenteeism decreased to 10.3%. According to the study's findings, yoga and meditation could be employed as effective alternative treatments for PD in young students.

5. (Masters Program in Applied Midwifery,School of Health Sciences Guna Bangsa Yogyakarta et al., 2019) conducted a study on female adolescents in Yogyakarta using an online platform with giving training for relaxation exercises. This study took 60 female students from Muhammadiyal High School. The yoga relaxation exercise group and the control group, each received a 30-minute yoga intervention using an online Android application. Pain assessment was done with NRS, and interpretation of data with Wilcoxon test. It is clear that using an Android application to practice yoga relaxation will be an effective way to treat the pain of dysmenorrhea because the results of the intervention showed a mean difference of 1.73 while it was 0.95 in the control group. Thus, it is clear that yoga increases relaxation, which lowers the level of pain in dysmenorrhea.

6. (Sumarni et al., 2022) puts the question that "Does Yoga Murottal Reduce Dysmenorrhea Pain and Improve Beta-Endorphin Hormone Levels in Adolescents?" This study was a legitimate experiment because it included an experimental group as well as a control group, and samples were under inclusive criteria. Blood samples and observational sheets were also used to gather data. In this study, 30 female respondents in total were collected, and the intervention group received yoga murottal twice a week for the duration of their menstrual cycle, while the control group received analgesic medication. Findings says, the amount of

pain changes in the experimental group, and the beta endorphin level in the intervention group is higher than control. Thus, the research demonstrated that yoga murottal reducees dysmenorrhea pain and can increase the beta endorphin levels.

7. (Department of Physiology, Dr. Somervell Memorial CSI Medical College, Karakonam, Trivandrum, Kerala, Pin – 695 504. et al., 2017) conducted a study named "Effect of anuloma-viloma pranayama on primary dysmenorrhoea in young females". 151 female students between the ages of 18 and 25 who were split into experimental and control groups (75 each) were chosen. The test group underwent a 30-day or one menstrual cycle of yoga intervention. Following the yoga intervention, and when compared with the other group, reduction in subjective pain can be seen. Following the yoga intervention, the number of participants experiencing severe pain from 8 to 1 reported a decrement, and 1% of the test group claimed total pain relief using the NRS scale. There has been an improvement in pain perception ($p<0.01$). Dysmenorrheal discomfort was managed with a daily Pranayama practice. Yoga instruction should therefore be provided at the school level and encouraged for daily use at home.

8. (Deekala et al., 2022) conducted a study named "Prevalence of Dysmenorrhea and Determinants of Menstrual Distress in Adolescents with Dysmenorrhoea, In Tirupati Town". This is a cross-sectional study conducted on 320 adolescent girls aged 11 to 17 years in the Govt. High Schools of Tirupati, India. Four instruments were used: Questionnaires on Demographic Data, Menstrual Distress Questionnaire, and A Questionnaire related to Menstrual characters and A Short Form McGill Pain Questionnaire. Through these tools, prevalence of dysmenorrhea was found 67.7% in this research where 33.8% participants have excruciating pain while 50.9% participants feel menstrual pain on their day one of periods and duration of menses is 5-6 days in 42.2% girls. Results were found out where menstrual distress is correlated with it's impact on daily activities, analgesic usage and absenteeism in class.

9. (O Nwimo et al., 2022) conducted a menstrual distress and hygiene management project for secondary school girls in Nigeria. 600 participants aged 10 to 19 years were randomly drawn through multi-stage procedure. To gather data, inventories and a questionnaire were employed with one survey which was a self-created Questionnaire with a correlation coefficient of 0.71, and the second was Menstrual Distress Scale (modified 11- item) with a correlation coefficient of 0.74. Statistics, both descriptive and inferential, were used to

analyse the data. The girls' poor management of menstrual hygiene and their extreme distress were revealed by the results. With respect to age, place of residence, and mother's occupation, positive outcomes were seen, as well as relationships between menstrual discomfort and father's occupation ($p<0.05$). The management of menstrual hygiene and menstrual distress were found to be positively correlated. Highlights of the study focused on creating such surroundings which promotes period hygiene at home and schools as well.

10. (Chien et al., 2013) conducted a study named "Effect of yoga on serum homocysteine and nitric oxide levels in adolescent women with and without dysmenorrhea", where Short-form Menstrual Distress Questionnaires (MDQs) were given out, and blood samples were utilised to measure the homocysteine level in a prospective controlled experiment. 30 women with primary dysmenorrhea and 30 healthy controls participated in this community-based study. For eight weeks, everyone received yoga intervention twice a week for 30 minutes each time. No visible difference could be discovered in both the groups as a result, while the homocysteine level reduced significantly following yoga intervention, by 51.37% in the dysmenorrheal group and by 46.46% in the control group. Thus, after eight weeks, yoga therapy may lessen the degree of dysmenorrheal pain and may lower blood homocysteine levels. It also helps to restore endothelial functioning.

11. (Kirca & Celik, 2023) conducted a study named “The effect of yoga on pain level in Primary Dysmenorrhea" in Turkey. This study was a randomised experimental study with study group and control group where 60 volunteer female students (30 in each group) were taken. For collection of data "Personal Information Form", "Visual Analog Scale" and "Dysmenorrhea Monitoring Form" was included, where students were requested to mark a number between 1 and 10 on the VAS scale according to severity of pain. For 12 weeks (3 months) once in a week yoga session took place. Results stated that, study group showed expected reduction outcomes than the other group. This proved that yoga can deduce pain in Primary Dysmenorrhea.

12. (B.R et al., 2015) worked on physiotherapy girls with PD and did comparative assessment of slow and fast phased pranayama on the life’s quality and pain as a clinical trial. For this study 90 unmarried girls aged 18-25 were considered into two equal groups. First group was a slow pranayama (Nadi Shodhan) group and another group was fast pranayama (Kapalbhati) group. For the assessement, “Moos Menstrual Distress Questionnaire” (Moos, 1968), NRS and Quality of life pain association was administered. Positive conclusions

($p<0.0001$) in the first group for the above variables can be seen which is more than the second group and prevalence of PD is high among the age group. Results showed that slow pranayama is more effective than fast pranayama and reduces absenteeism and stress levels.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 SELECTION OF SUBJECTS:

Subjects will be taken from a government and a private school, experiencing primary dysmenorrhea will be requested to participate in the study. A total of 48 girls aged between 13-18 years will be taken from two schools dealing with primary dysmenorrhea in their initial phase of menstruation.

Group A (Private School): 24 girls will be taken from a private school, divided in two equal groups i.e. experimental group (n=12) and control group (n=12) where data will be analysed through pre and post-test.

Group B (Government School): 24 girls will be taken from a government school, divided in two equal groups i.e. experimental group (n=12) and control group (n=12) where data will be analysed through pre and post-test.

3.2 SELECTION OF VARIABLES:

Independent Variable:

1. Yogic Intervention

Dependent Variables:

1. Psycho-Physiological Variable (Dysmenorrhea Pain)

2. Symptoms Before and During Primary Dysmenorrhea.

Yogic Intervention:

- ✓ **Opening prayer**
- ✓ **Yogic Breathing**
- ✓ **Pranayamas:** Anuloma-Viloma and Bhramari Pranayama
- ✓ **Relaxation:** Shavasana
- ✓ **Closing prayer**

3.3 RESEARCH DESIGN:

Samples will be selected through random sampling technique. The homogeneity of population will be based on some inclusive criteria and from them the sample will be selected. There will be two groups, Group A (Private School) and Group B (Government School) where participants will be divided equally in both groups i.e. experimental and control group by taking pre and post-test. Here True-experimental pre-test post-test randomised group design will be used.

3.4 ADMINISTRATION OF TESTS AND COLLECTION OF DATA:

Administration of Tests:

- In this study, assessment of pain in dysmenorrhea and its associated symptoms will be done among school girls for 4 working days during a week for three consecutive menstrual cycles (12 weeks). A total of 48 participants will be taken from government and private schools and the effect of pranayama will be assessed by taking a pre and post-test from both the schools through "Moos Menstrual Distress Questionnaire" (MMDQ), (Moos, 1968) developed by Dr. Rudolf H. Moos in 1968, which will aid in assessing the pain and symptoms associated with dysmenorrhea.
- The participants will be divided in two equal groups, Group A (Private School) and Group B (Government School) and in both groups participants will be divided in experimental group (which will be getting an intervention) and control group (which will not be getting any intervention) where the results will be assessed through pre and post-test.

Collection of Data:

- The data will be collected through a pre and post-test from Government and Private Schools of Gwalior region with the administration of MMDQ, which is a 46-item self-report inventory that will serve to assess pain in dysmenorrhea and the symptoms associated with it.
- In addition to this, for getting the best results an orientation programme will be conducted for the better understanding of the research, intervention and questionnaire, which will be given to the participants.

- For the assessment of data, pre-test will be taken before the starting of intervention from both groups and then training will be given to the experimental groups, and after receiving the intervention, post-test of these groups will be taken through MMDQ.

3.5 ASSESSMENT TOOL:

"Moos Menstrual Distress Questionnaire" (MMDQ), (Moos, 1968) developed by Dr. Rudolf H. Moos will be used for pain evaluation during menstruation along with its associated symptoms in the participants suffering from primary dysmenorrhea.

3.6 STATISTICAL TECHNIQUES:

Appropriate statistical techniques will be employed to evaluate the results, as after getting the evaluation system of the selected tool and knowing the nature of data, results can be drawn.

3.7 EXPECTED OUTCOME:

The research investigation expects to identify that school girls practicing Anuloma-Viloma and Bhramari Pranayama experience less pain alongside dysmenorrhea symptoms than non-practitioners. The investigation could further establish pranayama as an inexpensive, non-pharmacological therapy successful for adolescent menstrual healthcare and daily activities.

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